

Missouri Department of Natural Resources



PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: July 21, 2006

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to the Department of Natural Resources, Southeast Regional Office, 2155 N. Westwood Blvd., Poplar Bluff, Missouri, 63901, ATTN: Gary L. Gaines, P.E., Regional Director. Please include the permit number in all comment letters.

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by August 20, 2006 or received in our office by 5:00 p.m. on August 23, 2006. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at DNR's website, <http://www.dnr.mo.gov/env/wpp/wpcp-pn.htm>, or at the Department of Natural Resources, Southeast Regional Office, 2155 N. Westwood Blvd., Poplar Bluff, Missouri, 63901, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

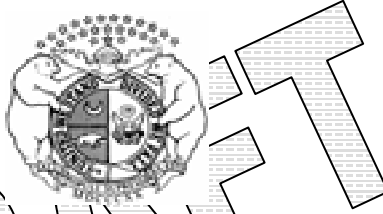
Public Notice Date: July 21, 2006
Permit Number: MO-0125598
Southeast Regional Office

FACILITY NAME AND ADDRESS	NAME AND ADDRESS OF OWNER
Malden Industrial Park Lagoon Malden Industrial Park Malden, MO 63863	Malden Board of Public Works 111 East Laclede Street Malden, MO 63863
RECEIVING STREAM & LEGAL DESCRIPTION	TYPE OF DISCHARGE
Unnamed Tributary to East Ditch #1 (u) NW ¼, SE ¼, Sec. 28, T23N, R10E Dunklin County	Domestic, construction modification

Plans and specifications for this facility have been reviewed by the Department of Natural Resources. The design engineer, a registered Missouri professional engineer, has certified that the plans and specifications meet all requirements of 10 CSR 20-Chapter 8 Waste Treatment Design.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0125598

Owner: Malden Board of Public Works
Address: 111 East Laclede Street, Malden, MO 63863

Continuing Authority: City of Malden
Address: City Hall, Malden, MO 63863

Facility Name: Malden Industrial Park Lagoon
Facility Address: Malden Industrial Park, Malden, MO 63863

Legal Description: NW ¼, SE ¼, Sec. 28, T23N, R10E, Dunklin County
Latitude/Longitude: +3636228 / -08958540

Receiving Stream: Unnamed Tributary to East Ditch #1 (u)
First Classified Stream and ID: East Ditch #1 (C)(03108)
USGS Basin & Sub-watershed No.: (008020204-040004)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 - POTW - SIC #4952
Four cell aerated lagoon/sludge retained in lagoon.
Design population equivalent is 6,800.
Design flow is 680,000 gallons per day.
Actual flow is 446,000 gallons per day.
Design sludge production is 71.4 dry tons/year.
Actual sludge production is 46.8 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Expiration Date
MO 780-0041 (10-93)

Gary L. Gaines, P.E., Director, Southeast Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 2 of 10	
					PERMIT NUMBER MO-0125598	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until 3 years from issuance. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 Flow	MGD	*****		*****	once/weekday**	24 hr. estimate
Biochemical Oxygen Demand ₅ ***	mg/L		65	45	twice/month	grab
Total Suspended Solids***	mg/L		110	70	twice/month	grab
pH - Units	SU	****		****	twice/month	grab
Oil & Grease	mg/L	15		10	twice/month	grab
Ammonia as N	mg/L	*****		*****	twice/month	grab
Temperature	°C	*****		*****	twice/month	grab
Lead, Total Recoverable	µg/L	20			once/month	24 hr. composite
Cadmium, Total Recoverable	µg/L	7.1			once/month	24 hr. composite
Copper, Total Recoverable	µg/L	20			once/month	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED <u>Monthly</u> ; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Aluminum, Total Recoverable	µg/L	*****		*****	once/quarter*	24 hr. composite
Silver, Total Recoverable	µg/L	*****		*****	once/quarter*	24 hr. composite
Cyanide (amenable to chlorine)	µg/L	*****		*****	once/quarter*	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED <u>Quarterly</u> ; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) Test	% survival	(See Special Condition)			once/year in May	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED <u>Annually</u> ; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective 3 years from permit issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*****		*****	Once/weekday**	24 hr. estimate
Biochemical Oxygen Demand ₅ ***	mg/L		45	30	once/month	24 hr. composite
Total Suspended Solids***	mg/L		45	30	once/month	24 hr. composite
pH - Units	SU	*****		*****	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Ammonia as N (May 1-Oct. 31)	mg/L	3.7		1.9	once/month	grab
Ammonia as N (Nov. 1-April 30)	mg/L	7.5		3.7	once/month	grab
Temperature	°C	*****		*****	once/month	grab
Fecal Coliform (Note 1)	#/100 mL	1000		400	once/month	grab
Total Residual Chlorine (Note 2)	mg/L	.0165 (.13ML)		.0082 (.13ML)	once/month	grab
Lead, Total Recoverable	µg/L	9.2		4.6	once/month	24 hr. composite
Cadmium, Total Recoverable	µg/L	.50		.25	once/month	24 hr. composite
Copper, Total Recoverable	µg/L	17.1		8.5	once/month	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED Monthly; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Aluminum, Total Recoverable	µg/L	*****		*****	once/quarter*	24 hr. composite
Silver, Total Recoverable	µg/L	*****		*****	once/quarter*	24 hr. composite
Cyanide (amenable to chlorine)	µg/L	*****		*****	once/quarter*	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED Quarterly; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) Test	% survival	(See Special Condition)	Once/year in May	24 hr. composite
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MONITORING REPORTS SHALL BE SUBMITTED Annually; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* See table below for quarterly sampling

Sample discharge at least once for the months of:	Report is due:
January, February, March (1 st Quarter)	April 28
April, May, June (2 nd Quarter)	July 28
July, August, September (3 rd Quarter)	October 28
October, November, December (4 th Quarter)	January 28

** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.

*** This facility is required to meet a removal efficiency of 65% or more.

**** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

***** Monitor and report.

Note 1 - Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

Note 2 - This permit contains a Total Residual Chlorine (TRC) limit.

- (a) This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine to be 0.13 mg/L when using the DPD Colorimetric Method #4500 - CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 0.13 mg/L will be considered violations of the permit and values less than the minimum quantification level of 0.13 mg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit.
- (b) Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.
- (c) Do not chemically dechlorinate **if it is not needed to meet the limits in your permit.**
- (d) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
- (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
- (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
- (2) controls any pollutant not limited in the permit.
- (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
- (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

C. SPECIAL CONDITIONS (continued)

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to area-wide wastewater treatment system within 90 days of notice of its availability.
4. Changes in Discharges of Toxic Substances
The permittee shall notify the Director as soon as it knows or has reason to believe:
 - (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
 - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
5. Report as no-discharge when a discharge does not occur during the report period.
6. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (e) There shall be no significant human health hazard from incidental contact with the water;
 - (f) There shall be no acute toxicity to livestock or wildlife watering;
 - (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
 - (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
 - (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

C. SPECIAL CONDITIONS (continued)

8. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	100%	Once/year	24 hr. composite	May

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a SINGLE dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results USING THE DEPARTMENT'S WET TEST REPORT FORM #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
 - (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
 - (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.
 - (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
 - (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
 - (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
 - (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
 - (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
 - (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
 - (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.

C. SPECIAL CONDITIONS (continued)

- (2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
 - (3) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days and biweekly thereafter, until one of the following conditions are met:
 - (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
 - (4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.
 - (5) The permittee shall submit a concise summary of all test results for the test series to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
 - (6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
 - (7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
 - (8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
 - (9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
 - (10) Submit a concise summary in tabular format of all test results with the annual report.
- (b) PASS/FAIL procedure and effluent limitations:
- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other Federal guidelines as appropriate or required.
 - (2) To pass a multiple-dilution test:
 - (a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC), OF 30% OR LESS THE AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR**,

C. SPECIAL CONDITIONS (continued)

- (b) For facilities with an AEC greater than 30% the LC50 concentration must be greater than 100%; **AND,**
- (c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS.
- (3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
- (4) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (5) Single-dilution tests will be run with:
 - (a) Effluent at the AEC concentration;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (6) Multiple-dilution tests will be run with:
 - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

C. SPECIAL CONDITIONS (continued)

9. Industrial Pretreatment Program

Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

- (a) Permittee shall submit to the Missouri Department of Natural Resources (MDNR) on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:
- (1) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
 - (2) A summary of the status of Industrial User compliance over the reporting period;
 - (3) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
 - (4) Any other relevant information requested by MDNR.

D. SCHEDULE OF COMPLIANCE

1. The final daily maximum and monthly average Fecal Coliform limits of 400/100ml and 1000/100ml, respectively, shall become effective 3 years from permit issuance, unless items b or c below are approved by the Department. The permittee may comply with the disinfection rules in the following manner:

- a) Install disinfection facilities, or;
- b) Present an evaluation to show that disinfection is not required to protect one or both recreational uses, or;
- c) Present a Use Attainability Analysis (UAA) that demonstrates one or both designated recreational uses are not attainable in the classified waters receiving the effluent. For more information on UAA's please contact the Water Protection Program at (573) 751-1300.
- d) Suggested timeline to comply with standard:
 - i) Submit evaluation or UAA if applicable within one year from issuance of this permit
 - ii) If evaluation or UAA not applicable or submittal resulted in Whole Body Contact retention then submit a preliminary engineering report, prepared by a licensed professional engineer in the State of Missouri within one year and six months from issuance of this permit. The preliminary engineering report shall make recommendations to upgrade the wastewater treatment facility to include effluent disinfection equipment. (If a facility utilizes disinfection by chlorine, it will be required to dechlorinate the effluent.)
 - iii) Submit construction permit application within two years from issuance of this permit and after approval of the preliminary engineering report by the Department. The application shall include applicable fees, plans and specifications in accordance with the approved preliminary engineering report.
 - iv) Submit letter of authorization or statement of work complete signed by the owner and a licensed professional engineer in the State of Missouri prior to final effluent limitations date of this permit.

D. SCHEDULE OF COMPLIANCE (continued)

2. Engineering report must be submitted within one year and three months of permit issuance that discusses the discharge monitoring reports and the facilities ability to achieve final effluent limits. If the final effluent limitations can not be met, the engineering report must provide alternatives for needed improvements to achieve final effluent limitations.

DRAFT

Date of Fact Sheet: July 12, 2006

Date of Public Notice:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
FACT SHEET

This Fact Sheet explains the applicable regulations and rationale for development of this permit and the public participation process.

NPDES PERMIT NUMBER: MO-0125598

FACILITY NAME: Malden Industrial Park Lagoon

OWNER NAME: Malden Board of Public Works

LOCATION: Malden, MO

RECEIVING STREAM: Unnamed Tributary to East Ditch #1

FACILITY CONTACT PERSON: Richard Blagg TEL (573) 276-2334

FACILITY DESCRIPTION AND RATIONALE

City of Malden has applied for a construction permit to combine wastewater flows from two wastewater treatment plants into one treatment facility thereby eliminating one treatment facility. Design information concerning treatment capacity for the combined flows has been reviewed. Permit monitoring and testing has been increased during an interim period to verify performance. A schedule of compliance has been added to the permit requiring an engineering report to present performance data and discuss any future upgrades if necessary based on performance. In addition, the permit allows for a schedule to address disinfection as a result of recent rule changes concerning whole body contact stream uses. Final effluent limitations are presented in the attached Water Quality Review Sheet. Interim limitations are being established in the permit for a three year period in accordance with 10 CSR 20-7.031(10). "Reasonable potential" analysis did not indicate problems associated with exceeding water quality standards for Aluminum, Silver, and Cyanide. Therefore, monitoring only requirements will remain in the permit at previous monitoring frequency for verification of the reasonable potential analysis at the combined wastewater flow. The water quality review sheet calls for a reduction in previous permit limitations for Lead, Cadmium, and Copper. The facility has not had a history of exceeding previous permit limitations for these parameters, however, since the limitations for these parameters are being lowered the monitoring frequency is being increased from quarterly to monthly. Interim limitations are being set at acute levels in the water quality standards and are lower than previously permitted levels as a result in recent water quality standard changes. Final limitations will be in accordance with the Water Quality Review Sheet. Monthly monitoring will provide adequate sampling data to perform a reasonable potential analysis for Lead, Cadmium, and Copper. Permit will contain a "reopener clause" to address potential water quality issues should this or other monitoring or observations indicate water quality standards may be exceeded or if existing designated uses may be negatively impacted due either in whole or in part to this discharge.

This permit will be issued for a period of five years.



Missouri Department of Natural Resources
WATER PROTECTION PROGRAM
Water Pollution Control Branch
NPDES Permits & Engineering Section

Water Quality Review Sheet

Determination of Effluent Limits

Facility Information

FACILITY NAME: Malden Industrial Park WWTF NPDES #: MO-0125598

FACILITY TYPE/DESCRIPTION: Existing facility is a 0.4 MGD aerated lagoon. Project is to increase capacity to 0.7 MGD

EDU: MS Alluvial Plain / Little 8-DIGT Drainage HUC: 08020204 COUNTY: Dunklin
EDU = Ecological Drainage Unit

LEGAL DESCRIPTION: NW ¼, SE ¼, Sec. 28, T23N, R10E LATITUDE/LONGITUDE: +3636228/-08958540

WATER QUALITY HISTORY: Routine effluent limit violations for pH, highest 10.3 SU. No stream surveys have been conducted.

Outfall Characteristics

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	OTHER
001	1.1	Secondary	Unnamed tributary to East Ditch #1	

Receiving Waterbody Information

WATERBODY	CLASS	WBID	1Q10 (CFS)	7Q10 (CFS)	30Q10 (CFS)	*DESIGNATED USES
Unnamed tributary to East Ditch #1	U	-----	0.0	0.0	0.0	General Criteria
East Ditch #1	C	3108	0.0	0.0	0.1	AQL, LWW, WBC

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warmwater Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

COMMENTS: Because this is an upgrade/expansion, secondary effluent limitations apply unless a water quality impact study is submitted allowing equivalent to secondary limits 10 CSR 20-7.015(8)(B)3.
Approximately 1 mile to East Ditch #1

MIXING CONSIDERATIONS

Mixing Zone (MZ). Not allowed. 10 CSR 20-7.031(4)(A)4.B.(I)(a)

Zone of Initial Dilution (ZID). Not allowed. 10 CSR 20-7.031(4)(A)4.B.(I)(b)

	Flow (cfs)	MZ (cfs)	ZID (cfs)
		0.0	0.0
7Q10	0.0	0.0	0.0
30Q10	0.0	0.0	N/A

Permit Limits And Information

TMDL WATERSHED:
(Y OR N)

N

W.L.A. STUDY
CONDUCTED:
(Y OR N)

N

DISINFECTION
REQUIRED:
(Y OR N)

Y

USE ATTAINABILITY
ANALYSIS (Y,N)

N

OUTFALL# 001

WET TEST (Y OR
N):

Y

FREQUENCY: ONCE/YEAR

A.E.C

100%

LIMIT

10 CSR 20-7.031(3)(I)2.

A.E.C. % =

$\frac{1}{X100}$

$\frac{\text{Design Flow} + \text{Zone of Initial Dilution}}{\text{Design Flow}}$

) -

PARAMETER	UNITS	MAXIMUM DAILY LIMIT	WEEKLY AVERAGE LIMIT	AVERAGE MONTHLY LIMIT	MONITORING FREQUENCY
FLOW		MONITOR		MONITOR	DAILY
BIOCHEMICAL OXYGEN DEMAND (BOD ₅)	mg/L		45	30	TWICE/MONTH
TOTAL SUSPENDED SOLIDS	mg/L		45	30	TWICE/MONTH
PH	SU	6-9		6-9	TWICE/MONTH
AMMONIA AS N (MAY 1 - OCT 31)	mg/L	3.7		1.9	TWICE/MONTH
AMMONIA AS N (NOV 1 - APR 30)	mg/L	7.5		3.7	TWICE/MONTH
OIL & GREASE	mg/L	15		10	TWICE/MONTH
FECAL COLIFORM	NOTE 1	1000		400	TWICE/MONTH
TOTAL RESIDUAL CHLORINE	µg/L	16.5		8.2	TWICE/MONTH
CADMIUM, TOTAL RECOVERABLE	µg/L	0.50		0.25	TWICE/MONTH
COPPER, TOTAL RECOVERABLE	µg/L	17.1		8.5	TWICE/MONTH
LEAD, TOTAL RECOVERABLE	µg/L	9.2		4.6	TWICE/MONTH
ALUMINIUM, TOTAL RECOVERABLE	µg/L	MONITOR		MONITOR	TWICE/MONTH
CYANIDE, AMENABLE TO CHLORINATION	µg/L	MONITOR		MONITOR	TWICE/MONTH
SILVER, TOTAL RECOVERABLE	µg/L	MONITOR		MONITOR	TWICE/MONTH

NOTE 1 - COLONIES/100 ML,

Derivation and Discussion of Limits

Wasteload allocations (WLA) were calculated using water quality criteria and the dilution equation below:

$$C = \frac{(C_s * Q_s) + (C_e * Q_e)}{(Q_e + Q_s)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

Where C = downstream concentration

C_s = upstream concentration

Q_s = upstream flow (cfs)

C_e = effluent concentration

Q_e = effluent flow (cfs)

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable acute water quality criteria (CMC: criteria maximum concentration) and stream volume of flow.

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

- **Biochemical Oxygen Demand** 10 CSR 20-7.015(8)(B)1.
- **Total Suspended Solids** 10 CSR 20-7.015(8)(B)1.
- **pH.** pH shall be maintained in the range from six to nine (6 - 9) standard units [10 CSR 20-7.015(8)(B)2.].
- **Ammonia as Nitrogen.** Total Ammonia Nitrogen - Early Life Stages Present criteria apply 10 CSR 20-7.031(4)(B)7.C. & Table B3. Background ammonia as nitrogen for receiving stream is assumed to be = 0.01mg/L.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: May 1 - October 31, Winter: November 1 - April 30

$$C_e = ((Q_e + Q_s)C - (Q_s * C_s))/Q_e$$

Summer

Chronic

$$C_e = ((1.1 + 0.0)1.5 - (0.0 * 0.01))/1.1$$

$$C_e = 1.5 \text{ mg/L}$$

$$WLA_c = 1.5 \text{ mg/L}$$

Acute

$$C_e = ((1.1 + 0.0)12.1 - (0.0 * 0.01))/1.1$$

$$C_e = 12.1 \text{ mg/L}$$

$$WLA_a = 12.1 \text{ mg/L}$$

$$LTA_c = 1.5(0.780) = 1.2 \text{ mg/L}$$

[CV = 0.6, 99th Percentile, n=30]

$$LTA_a = 12.1 (0.321) = 3.9 \text{ mg/L}$$

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$$MDL = 1.2(3.11) = 3.7 \text{ mg/L}$$

[CV = 0.6, 99th Percentile]

$$AML = 1.2(1.55) = 1.9 \text{ mg/L}$$

[CV = 0.6, 95th Percentile, n = 4]

Winter

Chronic

$$C_e = ((1.1 + 0.0)3.1 - (0.0 * 0.01))/1.1$$

$$C_e = 3.1 \text{ mg/L}$$

$$WLA_c = 3.1 \text{ mg/L}$$

Acute

$$C_e = ((1.1 + 0.0)12.1 - (0.0 * 0.01))/1.1$$

$$C_e = 12.1 \text{ mg/L}$$

$$WLA_a = 12.1 \text{ mg/L}$$

$$LTA_c = 3.1(0.780) = 2.4 \text{ mg/L}$$

[CV = 0.6, 99th Percentile, n=30]

$$LTA_a = 12.1(0.321) = 3.9 \text{ mg/L}$$

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$$MDL = 2.4(3.11) = 7.5 \text{ mg/L}$$

[CV = 0.6, 99th Percentile]

$$AML = 2.4(1.55) = 3.7 \text{ mg/L}$$

[CV = 0.6, 95th Percentile, n = 4]

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Fecal Coliform** - Discharge shall not contain more than a monthly geometric mean of 400 colonies/ 100 mL and a daily maximum of 1000 colonies/100 mL during the recreational season (April 1 - October 31) [10 CSR 20-7.015(8)(B)4.A.] Future renewals of the facility operating permit will contain effluent limitations for E. coli which will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards.
- **Total Residual Chlorine**. Warm water acute criteria = 19 µg/L, warm water chronic criteria = 10 µg/L [10 CSR 20-7.031, Table A]. Background = 0.0 mg/L.

Chronic

$$C_e = ((1.1 + 0.0)10 - (0.0 * 0.0))/1.1$$

$$C_e = 10 \mu\text{g/L}$$

$$\text{WLA}_c = 10 \mu\text{g/L}$$

Acute

$$C_e = ((1.1 + 0.0)19 - (0.0 * 0.0))/1.1$$

$$C_e = 19 \mu\text{g/L}$$

$$\text{WLA}_a = 19 \mu\text{g/L}$$

$$\text{LTA}_c = 10(0.527) = 5.3 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{LTA}_a = 19(0.321) = 6.1 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a . = 0.005 mg/L

$$\text{MDL} = 5.3(3.11) = 16.5 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{AML} = 5.3(1.55) = 8.2 \mu\text{g/L}$$

[CV = 0.6, 95th Percentile, n = 4]

Reasonable Potential Analysis Effluent limits for Cadmium, Copper, and Lead have been retained as a result of the reasonable potential analyses. A monitoring only requirement is established for Aluminum, Cyanide, and Silver. Electronic copies of the reasonable potential analyses are available upon request.

METAL	CMC (µg/L)	RECEIVING WATER CONCENTRATION (µg/L)	CCC (µg/L)	RECEIVING WATER CONCENTRATION (µg/L)	REASONABLE POTENTIAL
Aluminum	750	2.5	N.A.		No
Cadmium	7	9.0	0.3	9.0	Yes
Copper	20	293.9	10.0	293.9	Yes
Cyanide	22	2.5	5.0	2.5	No
Lead	100	90.1	4.0	90.1	Yes
Silver	6.5	5.3	N.A.		No

- **Cyanide, Amenable to Chlorination** Monitoring only to verify results of reasonable potential analysis. Reasonable Potential Analysis results are kept on file and are available on request.

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 162.5 mg/L.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.924	0.889
Copper	0.960	0.960
Lead	0.720	0.720

*Conversion factor for Cd & Pb is hardness dependent.
Values calculated using equation found in Section 1.3
of EPA 823-B-96-007 and hardness = 162.5 mg/L.

- **Total Recoverable Cadmium** Protection of Aquatic Life CMC = 7.1 µg/L, CCC = 0.3 µg/L.
Background assumed to be = 0 µg/L.

$$\text{Chronic} = 0.3/0.889 = 0.3 \mu\text{g/L}$$

$$\text{Acute} = 7.1/0.924 = 7.7 \mu\text{g/L}$$

Chronic

$$C_e = ((1.1 + 0.0)0.3 - (0.0 * 0.0))/1.1$$

$$C_e = 0.3 \mu\text{g/L}$$

$$\text{WLA}_c = 0.3 \mu\text{g/L}$$

Acute

$$C_e = ((1.1 + 0.0)7.7 - (0.0 * 0.0))/1.1$$

$$C_e = 7.7 \mu\text{g/L}$$

$$\text{WLA}_c = 7.7 \mu\text{g/L}$$

$$\text{LTA}_c = 0.3(0.527)=0.16 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{LTA}_a = 7.7(0.321)=2.5 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 0.16(3.11)=0.5 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{AML} = 0.16(1.55)=0.25 \mu\text{g/L}$$

[CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Copper** Protection of Aquatic Life CCC = 10 µg/L, CMC = 20 µg/L.
Background Total Recoverable Copper assumed to be = 0 mg/L.

$$\text{Chronic} = 10/0.960 = 10.4 \mu\text{g/L}$$

$$\text{Acute} = 20/0.960 = 20.8 \mu\text{g/L}$$

Chronic

$$C_e = ((1.1 + 0.0)10.4 - (0.0 * 0.0))/1.1$$

$$C_e = 10.4 \mu\text{g/L}$$

$$\text{WLA}_c = 10.4 \mu\text{g/L}$$

Acute

$$C_e = ((1.1 + 0.0)20.8 - (0.0 * 0.0))/1.1$$

$$C_e = 20.8 \mu\text{g/L}$$

$$\text{WLA}_c = 20.8 \mu\text{g/L}$$

$$\text{LTA}_c = 10.4(0.527)=5.5 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{LTA}_a = 20.8(0.321)=6.7 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 5.5(3.11)=17.1 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{AML} = 5.5(1.55)=8.5 \mu\text{g/L}$$

[CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Lead** Protection of Aquatic Life CCC = 4 µg/L, CMC = 100 µg/L.
Background Total Recoverable Lead assumed to be = 0 mg/L.

$$\text{Chronic} = 4/0.720 = 5.6 \mu\text{g/L}$$

$$\text{Acute} = 100/0.720 = 139 \mu\text{g/L}$$

Chronic

$$C_e = ((1.1 + 0.0)5.6 - (0.0 * 0.0))/1.1$$

$$C_e = 5.6 \text{ } \mu\text{g/L}$$

$$WLA_c = 5.6 \text{ } \mu\text{g/L}$$

Acute

$$C_e = ((1.1 + 0.0)139 - (0.0 * 0.0))/1.1$$

$$C_e = 139 \text{ } \mu\text{g/L}$$

$$WLA_c = 139 \text{ } \mu\text{g/L}$$

$$LTA_c = 5.6(0.527)=2.95 \text{ } \mu\text{g/L}$$

$$[CV = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$LTA_a = 139(0.321)=44.62 \text{ } \mu\text{g/L}$$

$$[CV = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of LTA_c or LTA_a .

$$MDL = 2.95(3.11)=9.2 \text{ } \mu\text{g/L}$$

$$[CV = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$AML = 2.95(1.55)=4.6 \text{ } \mu\text{g/L}$$

$$[CV = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Total Recoverable Aluminum, and Silver** Reasonable Potential Analysis indicates that no reasonable potential exists for exceedance of Water Quality Standards. Monitoring data must be collected to verify this determination. Reasonable Potential Analysis results are kept on file and are available on request.

Reviewer: Curt Gateley

Date: 5-24-06

Unit Chief: Refaat Mefrakis

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.